Claims

1. (Currently amended) A method, comprising:

acquiring volumetric ~~image~~ computed tomography (CT) data indicative of a moving heart of a subject~~organ during at least a sub-portion of a movement cycle of the moving organ~~;

acquiring an electrocardiogram (ECG)~~a~~ signal, which includes a plurality of heart cycles, for the subject ~~indicative of the movement cycle~~;

determining motion fields indicative of differences between reconstructed volumetric images reconstructed with volumetric CT data from a same heart cycle of the plurality of heart cycles;

~~using a similarity measure to determine motion fields that describe motion of the moving organ during the movement cycle~~ based on the image data and the signal, ~~wherein the similarity measure is a difference measure~~;

determining where ~~the~~ motion is minimal based on the motion fields;

selecting a portion of the volumetric ~~image~~ CT data that corresponds to where the motion is determined to be minimal; and

reconstructing an image from the selected portion of the volumetric ~~image~~ CT data.

2. (Cancelled)

3. (Currently amended) The method of claim 1, wherein the ~~plurality of~~ motion fields are indicative of motion between motion phases of the ~~movement~~ heart cycle.

4. (Currently amended) The method of claim 1, wherein the volumetric ~~image~~ CT data correspond to ~~the~~ a coronary artery region and simultaneously measured electrocardiogram data.

5. (Currently amended) The method of claim 4, wherein ~~the selection of~~ selecting the portion of the volumetric ~~image~~ CT data ~~corresponds~~ includes ~~to a~~ setting ~~of~~ a gating window and~~; wherein,~~ on a variation of the gating window, a new image is reconstructed in real-time;

~~wherein~~and the new image is displayed on a display such that a real-time optimization is provided.

6. (Currently amended) The method of claim 5, wherein the variation of the gating window is based on ~~the~~ first time points such that the gating window is automatically set to time points where there is minimal motion in the ~~object~~ heart such that the new image is automatically optimized.

7. (Currently amended) The method of claim 5, wherein the variation of the gating window is based on an input from a user such that a real-time interactive optimization of the image is provided.

8. (Currently amended) The method of claim 4, further comprising the steps of:

performing a sliding reconstruction of the volumetric CT data;

segmenting the coronary vessel tree from the volumetric CT data; wherein ~~the determination of the plurality of~~ motion fields ~~is performed such that the plurality of motion fields describes~~ describe motions of areas of the coronary vessel tree.

9. (Currently amended) An image processing device, comprising:

a memory for storing volumetric CT data, wherein the volumetric CT data include a plurality of projections corresponding to a plurality of time points during a single heart cycle; and

an image processor for reconstructing an image of a heart~~an object~~ from the volumetric CT data ~~of the object~~, wherein the image processor is adapted to perform the following operations:

estimating a signal indicative of the single heart cycle~~motion of the object~~;

determining a plurality of motion fields from volumetric images ~~data~~ generated from the volumetric CT data and the estimated ~~motion of the object~~signal, wherein the motion fields are based on differences between the volumetric images;

determining first time points of the plurality of time points, based on the plurality of motion fields, where ~~the~~ motion of the heart~~object~~ in the heart cycle is minimal; ~~and~~

selecting projections from the plurality of projections on the basis of the first time points; and

reconstructing the image from the projections selected from the plurality of projections.

10. (Currently amended) The image processing device of claim 9, wherein the image processing device is a CT system suitable for cardiac CT; wherein the volumetric CT data correspond to cardiac CT data ~~and one of simultaneously measured electrocardiogram data and photoplethysmographic data~~.

11. (Currently amended) The image processing device of claim 9, wherein the image processing device is a multi-slice CT system; wherein the volumetric CT data corresponds to a coronary artery region ~~and simultaneously measured electrocardiogram data~~; wherein the selection of the projections from the plurality of projections corresponds to a setting of a gating window; wherein, on a variation of the gating window, a new image is reconstructed on the basis of an iterative reconstruction optimization in real-time; and wherein the new image is displayed on a display such that a real-time optimization is provided.

12. (Currently amended) A computer readable medium encoded with computer executable instructions, which, when executed by a computer, cause the computer to perform the following operation:

determining a plurality of motion fields ~~from volumetric data~~ corresponding to a scanned object, wherein the plurality of motion fields is indicative of differences between volumetric images generated from volumetric CT data corresponding to a single heart cycle;

determining first time points of the single hear cycle where the motion of the object is minimal on the basis of the motion fields; ~~and~~

selecting projections from the plurality of projections on the basis of the first time points; and

reconstructing an image from the projections selected from the plurality of projections.

13. (Currently amended) The computer readable medium of claim 12, wherein the volumetric CT data correspond to cardiac CT data and simultaneously measured photoplethysmographic data.

14. (Currently amended) The computer readable medium of claim 12, wherein the volumetric CT data correspond to a coronary artery; wherein the selection of the projections from the plurality of projections corresponds to a setting of a gating window; wherein, on a variation of the gating window, a new image is reconstructed on the basis of an iterative reconstruction optimization in real-time; and wherein the new image is displayed on a display such that a real-time optimization is provided.

15. (Previously presented) The computer readable medium of claim 12, wherein the plurality of motion fields describe inter-image motion.

16. (Currently amended) The computer readable medium of claim 12, wherein ~~the act of~~ determining the plurality of motion fields includes estimating a magnitude of the motion based on a difference measure.

17. (Currently amended) The computer readable medium of claim 12, wherein ~~the act of~~ determining the plurality of motion fields includes estimating a magnitude of the motion based on a similarity measure.

18. (Currently amended) The computer readable medium of claim 12, wherein ~~the act of~~ determining the first time points where the motion of the object is minimal includes comparing the motion fields to a threshold.

19. (Previously presented) The image processing device of claim 9, wherein the plurality of motion fields includes a magnitude of the motion based on a difference measure.

20. (Previously presented) The image processing device of claim 9, wherein the plurality of motion fields includes a magnitude of the motion based on a similarity measure.